ERIC Document Resume	See Instruction Sheet	DATE OF RESUM 6/22/65	DATE RECEIVED

A. PUBLICATION DATA

1. ERIC NUMBER	2. ORIGINATOR CONTROL NO(S).	3. IDENTIFICATION NO.
ED000114	7452	N.A.

DO NOT WRITE IN SPACE BELOW

4. AUTHOR(S):
Johnson, Rufus C. Jr.

5. TITLE OF DOCUMENT ABSTRACTED:
A Study of Current Philosophy and Practices in Industrial Arts Teacher Education Programs

6. PUBLICATION TITLE:
N.A.

7. EDITOR(S):
N.A.

8. PLACE OF ORIGIN
ORG. Cheney State College
ST.
CITY, STATE Cheney, Pa.

9. PUBLISHER OR SOURCE
Cheney State College

10. VOL.	11. PAGES	12. MO./YR.	13. TOTAL PP.
N.A.	N.A.	60	27

TELE. EXT.
INST/LOC CODE

MICROFILM COPY AVAILABLE
YES ☒ NO ☐

COPYRIGHT GRANTED
YES ☐ NO ☒

COPYRIGHT RELEASE FILED
YES ☐ NO ☐

TYPE OF REPORT
PROPOSAL ☐
IN-PROGRESS ☐
FINAL ☒
FOLLOW-UP ☐

OTHER ERIC REFERENCES:

ERIC SATELLITE CODE

B. INDEXING DATA

14. SUBJECT AREA

15. TYPE OF ENDEAVOR
survey

16. INDEXING TERMS (6-12)

surveys	indistrial arts	personnel	students	bldgs. &
professional edu.	programs	teachers	enrollments	equip.
teacher edu.	administration	admissions	curriculum	
		identification	teaching methods	

17. ABSTRACT (MAX. 250 WORDS)

A study of current philosophy and practices in industrial arts teacher education programs in 20 selected colleges. Discusses administrative and teaching staff, admission and selection of students, trends in student enrollment, curriculum features, teaching procedures, and facilities.

ERIC No.

18. SOURCE OF ABSTRACT

C. FUNDING DATA

19. SUPPORTING ORGANIZATION	20. DIVISION OR DEPT.	21. CONTRACT NO. / PROJECT NO.
	22. TOTAL COST OF PROJECT	
	23. DURATION OF PROJECT	U.S. Department of Health, Education, and Welfare Office of Education

ERIC Form 1

Teacher Educ:
5-18 (Industrial Arts)
R.
7452
ED000114
HE 7452

A STUDY OF CURRENT PHILOSOPHY AND PRACTICES IN INDUSTRIAL ARTS TEACHER EDUCATION PROGRAMS

by

Rufus C. Johnson, Jr.
Professor of Industrial Arts
State Teachers College
Cheyney, Pennsylvania

January, 1960

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Office of Education

This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated do not necessarily represent official Office of Education position or policy.

ED000114

TABLE OF CONTENTS

Page

Introduction 1

Objectives 1
Selection of Institutions 3
Procedure in Arranging and Conducting Visits 3

Administrative and Teaching Staff 6

Admission and Selection of Students 9

Trends in Student Enrollment, Size of Class Groups, and Teachers 14

Curriculum Features, Teaching Procedures and Student Experiences 17

Student Teaching Practices 21

Buildings, Equipment, and Facilities 23

A Final Word 25

Appendices -
1. Letter Requesting Approval to Visit Institutions 26
2. Comments from Industrial Arts Leaders Approving Visits 27

Introduction

This undertaking was planned as part of an individual program during sabbatical leave of absence in the first semester of the school year 1959-60. An attempt was made to follow up, on a more selective and restrictive basis, a previous study on Admission Practices in Industrial Arts Teacher Education Programs.(1) This was done by limiting the institutions in the survey, and covering more intensely, through examination of unpublished professional materials, some of the characteristics of each program. Specific objectives guiding this investigation were as follows:

1) To see, through personal visits, existing and proposed physical layouts and arrangements of classrooms, shops, and laboratories in selected industrial arts teacher education centers.

2) To observe, wherever possible, classroom teaching and student activities in these institutions.

3) To visit student teaching centers in action, accompanied by department supervisory personnel.

4) To confer with teachers, students, and administrators in an effort to understand more clearly the rationale which motivates and directs various aspects of their professional program.

The types of colleges selected for visitation included state teachers colleges, public and private colleges and universities located primarily in northeastern states. One extended tour of the middle west was included. A total of 20 institutions located in 11 states were visited between September 20, 1959, and January 8, 1960. Table I presents a distribution of these colleges according to location by states.

---

(1) Johnson, Rufus C.,Jr. "A Study of Selection and Guidance Procedures For Students in The Program of Industrial Arts Teacher Education at the State Teachers College,Cheyney, Pennsylvania" (Unpublished doctor's dissertation, Department of Industrial Education, The Pennsylvania State University, 1949) Chapter III, pp. 40-50.

TABLE I
Selected Industrial Arts Teacher Education Centers, Contacted by State and Institution, 1959.

STATE:	INSTITUTION:
Connecticut:	Central Connecticut State College, New Britain
Illinois:	Bennett College, Bradley University, Peoria Chicago Teachers College, Chicago
Indiana:	Ball State Teachers College, Muncie Indiana State Teachers College, Terre Haute
Maine:	Gorham State Teachers College, Gorham
Massachusetts:	State Teachers College, Boston State Teachers College, Fitchburg
Maryland:	University of Maryland, College Park
New Hampshire:	Keene Teachers College, Keene
New Jersey:	Montclair State College, Montclair Trenton State College, Trenton
New York:	State University of New York, College for Teachers, Buffalo The City College, New York, N.Y. New York University School of Education, N.Y.C. State University of New York, Teachers College, Oswego
Ohio:	The Ohio State University, Columbus
Pennsylvania:	State Teachers College, California State Teachers College, Millersville The Pennsylvania State University, University Park

Selection of Institutions

The institutions were selected on the basis of wide recognition accorded them as effective and representative centers of industrial arts teacher education; also, on the basis of personal study and judgment of the writer who has maintained close professional contact with teachers, leaders, and administrators engaged in the preparation of industrial arts teachers during the past twenty-five years.

Yearbooks I and II, concerned with personnel and facilities of the American Council on Industrial Arts Teacher Education served as a guide in locating and selecting individuals to contact at various institutions. The American Council on Industrial Arts Teacher Education Roster, 1958-1959 was also used to prepare a list of present teachers and program directors. Additional help was received from personal conferences with staff members at Cheyney State Teachers College, and individuals from other colleges where interest had been expressed in the project. Several graduates of Cheyney made helpful suggestions concerning industrial arts programs for possible visitation.

Procedure in Arranging and Conducting Visits

Each visit was initiated by sending an individualized, informal letter to Directors of Industrial Arts Divisions or Department Heads requesting approval to visit their institution on a scheduled date. A prompt and favorable reply was received from all individuals except one. However, arrangements were made later to visit this particular institution. Visits to two of the selected institutions had to be cancelled due to delay in travel connections and conflicting assignments at the colleges.

During this period of observation visits were also made to twelve secondary schools located in five large cities in as many different states. Cheyney graduates of the industrial arts teacher education program were employed in these secondary schools as teachers of industrial arts and related subjects. In some instances they were active in cooperative student teaching programs.(2) The writer attended two regional conferences of industrial arts teachers, and participated in various meetings of the Industrial Arts Division, American Vocational Association, and National Association of Industrial Teacher Educators which were scheduled during the 53rd annual convention of the American Vocational Association, December 7-11, 1959, Chicago, Illinois.

At least one observation visit was made to nineteen of the colleges and universities listed, and only one institution was visited on one day. A travel schedule was arranged to spend one full school day in conferences and observation at each institution. Two visits were made to three of the teacher education centers located within a distance of about 100 miles from home.

All contacts and meetings with teachers and school officials during the visits were conducted on an informal basis. The general procedure included a preliminary meeting with the Director or Department Head, and frequently small groups of staff members. This was followed by a guided tour of the physical plant and teaching areas. A schedule of activities was outlined for the particular visit, and opportunity given to observe the program in action according to interest and available time. Additional short meetings were held

---

(2) This report does not include findings from visits to secondary industrial arts programs. A separate report of Cheyney Industrial Arts Graduates, and observations of secondary schools has been planned.

throughout the visiting period with individual teachers and groups of staff members in various industrial arts areas. At five of the colleges a brief conference was held with the Dean of Instruction, and at two institutions with the President. About one-half of the industrial arts teachers were available on campus for conferences at most of the institutions, and the entire staff was present during visits to five institutions. Whenever possible admission officers joined one of the groups mentioned above. Actual time spent in conferences with Directors and Department Heads was approximately 1½ hours at each college. However, at several colleges the Directors gave at least 2 or 3 hours of their time, explaining certain features of their program and discussing problems concerning industrial arts teacher education.

Industrial arts classes were observed according to the regular schedule of work. This included shop and laboratory work, recitations, student teaching planning groups, and classes in methods and principles of teaching. Student teaching sessions were observed in special campus laboratory schools, and in a few places, where it was feasible, the investigator accompanied the student teaching supervisor on visits to public school teaching centers. Students at all of the colleges inquired about industrial arts programs at other colleges. Interest was expressed concerning industrial arts education in Pennsylvania, and the work engaged in by the writer.

In three states brief meetings were arranged with Supervisors of Industrial Arts at State Departments of Education.

It is important to emphasize that this survey was not planned to determine what is considered "new" in various education programs,

but to observe as much as possible of existing practices. The following summary statements represent some of the observable features of those places visited. Information presented in this report has been secured mainly through observation and personal conversations with Industrial Arts directors, teachers, students, and other people. An effort has been made to present this material as accurately as possible. Permission was granted to observe everything possible, and to use the information in any helpful manner desired. Many teachers in the institutions visited expressed the hope that a summary of the findings of this observation tour would be made available to them.

Administrative and Teaching Staff

Administrative leadership of the industrial arts programs is carried out under several titles in the colleges and universities. Director of Industrial Arts is used in some institutions, Head of the Industrial Arts Department, and Chairman of Industrial Arts in other places. Professor, and Head of Industrial Education or Vocational Education is the title in a few centers. In one state university leadership is designated under four professors who serve as Coordinators of various phases of the work, such as the graduate program, special services, undergraduate program, and student teaching work. Direction of the industrial arts program in another large university is accomplished through a Chairman of the Vocational Education Department who also teaches undergraduate and graduate industrial arts classes. Three other full time professors of industrial arts serve as department Heads and are responsible for administering certain phases of the program. At

this institution Curriculums in Industrial Arts, Occupational, and Manual Arts Therapy, and Aviation and Aeronautical Education are offered under the above leadership. At the largest industrial arts teacher education center visited there is a Director of the Division, and at least four other professors serve respectively as Department Head for shops and laboratories, elementary industrial arts program, student teaching, and professional areas.

The writer was impressed by the positive, dynamic leadership, high level of interest, and professional competency demonstrated in the work of industrial arts teacher education personnel. A noteworthy characteristic of many of the industrial arts teachers in these institutions was their rich background of technical knowledge and skills. Wide use of this knowledge and skills of industrial arts teachers was called to the attention of the writer at a number of the colleges. The skills were being used in some particular work at the institution, or in a private business or community industry. Shop teachers were found doing skilled work as electricians, radio and television repairmen, automobile mechanics, plumbers, machinists, carpenters, and furniture craftsmen. Other forms of work engaged in were printing, photography, nursery and landscape work.

Several industrial arts teacher educators were building their house, or had recently completed construction of houses and apartment buildings. In a state college for teachers in New Jersey an industrial arts professor has either built or sold a house each year in the last 16 years. Industrial arts students under supervision of this same professor recently constructed a general shop room for the industrial arts department, with some help from the repair and maintenance department of the college.

This information seemed important to mention in this report because it is related to the work in industrial arts education, and is frequently omitted from teacher's records or published statements of their activities.

Directors, department heads, and teachers in numerous instances are called upon to serve in responsible positions, and handle various assignments in other areas of the college work. A few specific examples follow.

The Director of the industrial arts program at a teachers college in New England serves in an advisory capacity and consultant for industrial arts programs throughout the state. In addition, this Director is a special assistant to the President of his college. In a Pennsylvania teachers college, a Professor of industrial arts also coordinates and directs the student teaching program for all curriculumareas of the college. At the same institution, a second Professor of industrial arts is in charge of college publicity and public relations work. The Chairman of an industrial arts program in another state teachers college is assisting a new Dean of Instruction in the duties of his office. A state university Professor of Industrial Education was recently given the responsibility as Dean of Faculty of the university. Examples of public responsibility and service undertaken by industrial arts people may be indicated through their widespread, effective participation in the work of professional organizations. The Director of Industrial Arts in one of the largest state teachers colleges in Pennsylvania has the important responsibility as Editor of the Industrial Arts Teacher,

publication of the American Industrial Arts Association. The Executive Secretary of the American Industrial Arts Association is also the Director of the second largest industrial arts teacher education program in the state of New York.

In a number of colleges visited at this time industrial arts faculty members were found to be on leave of absence for travel, individual study and research. Two program Directors were on leave for special service with the Federal Government. The Head of a large department of metallurgy at a state university was reported serving on the President's fact finding committee in the national steel industry and steel workers' strike.

Undoubtedly this service and experience are important factors in the enrichment of many teacher education programs. It is important to state here in emphatic terms that this active participation in various activities by industrial arts personnel did not appear to reduce the effectiveness of their service and commitment to regularly assigned work in the industrial arts departments. It appeared that necessary adjustments had been made to carry on the scheduled program of work.

Admission and Selection of Students

It was believed important and significant to find out as much as possible about admission policies now operating in the selected teacher education institutions. Among the questions asked of those consulted were the following: What are the requirements for admission to your institution? How is selection made for students entering the industrial arts program?

There appears to be wide agreement among industrial arts leaders that efforts to raise admission standards should be continued by college officials. General qualifications required of prospective students are: certificate of graduation with 16 units of work from an accredited secondary school, good health and personal characteristics considered essential to successful teaching, and in most colleges, personal interview and entrance examination. A uniform policy of admission of students to various curricula of the institution is followed in colleges of this study. More than half of the Directors of Industrial Arts Programs stated the opinion that no special requirements or practices should be set up for those students entering industrial arts programs. General requirements should be high enough for all college work. A number of industrial arts departments do have special admission requirements, and are experimenting with certain procedures. Other industrial arts departments have been given official approval to set up special standards.

A minimum requirement is that applicants for admission must rank in the upper half of their graduating classes and must be recommended by the high school principal. Students who rank in the lower half of their classes are advised not to seek admission. Some colleges are giving preference to applicants in the upper 25% of their classes. Other colleges report that entering freshmen must have a high school average of 75 to 85%, or give satisfactory performance on exacting entrance examinations. It is strongly recommended by admission officers that prospective students have a background of college preparatory courses in the high school

program. In many of the institutions visited prospective students must demonstrate skill and ability in English and Mathematics, and have some work in Science (Chemistry and Physics), and Social Studies. Remedial courses are required in English and Mathematics for students with inadequate preparation in these fields for college work. A few institutions reported a heavy elimination of students in the first year.

Selection of students for industrial arts programs is made after admission, at the end of the first or second year in a number of colleges. Selective retention of students in some industrial arts programs is based upon achievement in college courses in the first two years. Grade point averages are used to indicate quality of work.

Two large institutions, a state university, and a state teachers college reported a policy of granting admission on a conditional basis to applicants who fell below some of the stated requirements. Special problems were considered where the applicant was a transfer or had been out of school and engaged in other activity a few years. The only college in one state preparing industrial arts teachers requires a minimum of 2 years of Mathematics with at least 2 semesters of Algebra; a minimum of 1 year of Science, preferably Physics or Chemistry; and a minimum of 1 year of General Industrial Arts in addition to other standards of admission - health, personality, rank in upper half of class, and promise as a teacher.

Personal interviews rank high in importance as an admission requirement, according to college officials. The personal interview is required of all entering freshmen and transfer students.

Students interested in industrial arts are usually interviewed by industrial arts department staff members, and frequently by other faculty groups. Recommendations are then made to college admission officers.

Every institution visited in this survey reported a steady increase in enrollment, with large numbers of applicants in recent years. Since September 1959, some of the collegesreport they have been interviewing and screening candidates who hope to be admitted in the winter or spring term of 1960. One teachers college reported they were able to accept only 75 of approximately 250 applicants to the industrial arts department in the fall of 1959.

A number of institutions explained that strong support came from alumni groups in recruiting prospective students. Two departments said, however, that the alumni did not always suggest "good" prospects to their college. Three or four colleges said that a special effort was made regularly by college officials to attract students through the mail with news bulletins and notices. Some colleges also depend on industrial arts conferences and meetings to invite high school students and teachers to the college campus. Table II includes a statement of general requirements for admission to teacher education programs.

TABLE II

General Requirements for Admission to
Teacher Education Programs

Health and Physical Condition (freedom from disease or condition which would interfere with teaching service) Statement required by family physician and Examination by college physician
Secondary school record (16 units prescribed in most colleges)
Recommendation of high school principal (estimate of ability to do college work)
Entrance examination (various instruments used, including Scholastic Aptitude Tests of the College Entrance Examination Board Teachers Colleges Admission Tests American Council on Education Battery
Personal interview - rating of Personal Characteristics
Speech test
Citizenship (special approval required for graduation for non-citizens)
Residence (preference given to state residents in some colleges)

Trends in Student Enrollment, Size of Class Groups, and Teachers

Approximately 3400 students are enrolled in industrial arts programs in the colleges visited. They are being taught by approximately 150 full time industrial arts teachers.

A steady increase in enrollment of industrial arts majors was reported in all institutions. Industrial arts courses are offered to large numbers of students from other college curricula as required and elective work. This includes students from liberal arts, home economics, elementary education, health and physical education fields. In a large state university of the middle west, approximately 125 industrial arts majors are enrolled in the present quarter, and approximately 500 elementary education students will be taking a 3 credit course in shopwork during the college year. A teachers college in a neighboring state, with a 1959 fall quarter on campus gross enrollment of 6460 students, provided instruction in seven areas of industrial arts shopwork to approximately 700 students in the year just ended. Of this group, 300 plan to teach industrial arts. The largest industrial arts center visited in this study was a teachers college with a gross enrollment of about 2100 students in October, 1959. The two major programs at this teachers college are elementary education and industrial arts. A total of 627 students were reported majoring in industrial arts. All elementary education students are required to take a course in elementary industrial arts at this college. A large city teachers college in the middle west offers industrial arts programs for a total of 205 full time majors, 75 in elementary industrial arts and 130 in the high school industrial arts

curriculums, and approximately 200 more graduate students and part time in-service people. About 25 students enter this industrial arts department each semester. Continuous class sessions in industrial arts work are arranged at this college from 8:00 AM until 9:00 PM Monday through Friday.

Total on-campus enrollment in the smallest teacher education center was 750 students in a teachers college, and the largest reported was approximately 27,000 students in a state university. Three institutions reported a gross enrollment above 15,000 students.

The institutions show a wide range in size based on industrial arts enrollment. Industrial arts majors range from approximately 100 students to 627 students. Several of the large institutions reported an industrial arts enrollment of approximately 100 full time undergraduate students.

However, there is a definite trend in four large universities visited to offer a full schedule of graduate work in industrial arts. At least eight of the teachers colleges also offer courses leading to the Masters degree, and others are preparing to do the same. The industrial arts department of one teachers college awarded 15 Masters degrees in the spring of 1959. All of the institutions with a graduate program in industrial arts or industrial education provide a plan of graduate assistantship for advanced students.

The number of full time industrial arts teachers in the colleges range from four to eight teachers in the smaller centers up to 25 or 30 teachers in large programs. In several industrial arts departments with enrollments under 500 students, 10 or 12 full-time teachers were employed. The number of full-time teachers was also

related to the size of the industrial arts program and variety of shop areas offered.

One institution with an industrial arts enrollment of about 100 undergraduates and 10 to 12 graduate students had a total of eight teachers in the department, including four graduate assistants. At this particular institution, industrial arts undergraduate majors were also scheduled for basic required courses under teachers in the fine arts department and in the school of engineering. About five of the colleges reported a plan or arrangement similar to this.

Directors, department heads, and all teachers in these industrial arts teacher education programs were responsible for teaching at least one basic shop or laboratory course. Directors or heads of departments all said they definitely wanted responsibility for teaching a favorite shop course along with other duties.

Twenty (20) clock hours per week seemed to be the scheduled teaching load in most of the industrial arts teacher education programs. A few colleges reported "adjusted loads" for industrial arts teachers ranging from 16 to 20 hours per week. Much additional time, of course, was reported by all colleges in preparation of shops, laboratories, and arrangement of teaching materials before and after scheduled classes.

Class size for industrial arts majors in the junior and senior years in most places appeared reasonably small. Most class groups observed had between 15 and 18 students. However, it was reported and also observed in most industrial arts groups that beginning classes were crowded, with more than 30 students in some shop areas, even after large freshman or sophomore classes had been divided into several sections. Student class groups from other departments taking industrial arts courses, and using the same shop facilities, were

extremely crowded.

Curriculum Features, Teaching Procedures, and Student Experiences

A detailed analysis of curriculum patterns will not be attempted in this summary since complete descriptions of coursework requirements appear in catalog publications of each institution. Requirements in terms of total spread of courses and areas of preparation appear to be about the same in different colleges. However, there are some interesting and significant differences in individual courses required, and in organization and teaching procedures observed in the colleges visited. The basic function of the programs is to prepare teachers, although a few of the large institutions prepare individuals for service in other related fields, as indicated earlier in this report.

All of the industrial arts departments are committed, in various degrees, to the goals of general education. Cultural benefits in industrial arts courses are recognized and utilized by large numbers of students majoring in other curricula.

Total credits required for graduation range from 128 semester hours in most undergraduate programs to 136 hours in a few colleges. The total pattern of general education and basic professional work amounts to about 60%, while electives, specialized professional or technical courses amount to 40% in most institutions. There is a practice of suggesting that electives be taken in certain designated fields such as Science, Social Studies, Mathematics, Principles of Art and Design, and Shop Courses. Very few hours are available for electives in some programs.

It was believed significant and interesting to learn from industrial arts people what they considered to be a feature, or special development in their programs. In response to this inquiry attention was directed to practices being followed in a number of programs, some of which are described briefly in the statements below.

1) The sequence of courses as set up in various curriculums is followed as closely as possible. Prerequisites are frequently required for certain shop courses as well as for specialized professional courses.

2) A few teachers colleges have employed two full-time instructors in each shop area. In two industrial arts departments, shop teachers also teach a course in mechanical drawing and design related to a particular shop subject.

3) Considerable variation was observed in amount of drawing and design required, content and teaching techniques in this subject. Drawing requirements were found to be from 4 to 6 credits in a few programs, and 8 to 12 credits in others. In one teachers college a program for the preparation of mechanical drawing and design teachers requires 32 credits in this subject for certification.

4) One or two teachers are responsible for the courses in drawing and design in most industrial arts programs. At least one course dealing with principles of design is required in each program. Work covered in mechanical drawing and design courses includes graphic solutions and developments, orthographic projection, pictorial representation, auxiliary views and sectional details, technical sketching, design fundamentals, machine design, and architectural drawing.
Teachers of drawing and design seem to feel that students who enter industrial arts teacher education programs should be required to have at least a background in the care and use of mechancial drawing instruments, and some knowledge and skill in performing techniques of view drawing. Some teachers said frankly that fundamentals of mechanical drawing should be a prerequisite, and eliminated from the college teaching program. Two institutions have a policy that entering students are expected to have backgrounds in drawing and some shopwork.
Related drawing and design is emphasized in the work of most shop courses.

5) Questions by industrial arts educators were frequently raised concerning needs of industrial arts students in Science, Mathematics, and Language Arts Skills. Courses in both Physics and Chemistry are recommended as a requirement in industrial arts undergraduate programs.
In a few institutions it was explained that no course in Mathematics is required in the undergraduate program; however, students who give low performances in the Mathematics section of entrance examinations are required to schedule one or more courses in college Mathematics.

6) Arrangements for some type of general shop experiences was considered most essential, and provided for in most colleges visited. Notable examples of well developed courses in industrial arts general shop activities were found at the State Teachers College, Millersville, Pa.; Ball State Teachers College, Muncie, Indiana; Gorham Teachers College, Gorham, Maine; and the State University of New York, Teachers College, Oswego. The last three named offer a general shop program to students from the Elementary Education field or other fields. At Montclair State College, Montclair, New Jersey, all shop experiences are provided through the general comprehensive laboratory plan consisting of 7 or 8 areas.

7) General shop teachers for secondary schools were reported in great demand in six states visited.

8) Orientation courses (introduction to industrial arts) are conducted in about half of the institutions, for 2 to 4 credits. This work includes a study of the place and purpose of industrial arts in the educational program, requirements for a teaching career, and individual and group laboratory problems.

9) "Starter Projects" are widely used in teaching various shop courses. The time involved in "Starter Projects" is relatively short, and creative design and construction work are emphasized with basic hand tools. Participation and interest of students in this work appear to be on a high level. Connecticut State College at New Britain displayed interesting and challenging "Starter Project" work in several shops.

10) Industrial arts teacher educators recognize certain benefits that may be realized through various requests for job service, repair and production work, but they reported no particular problem of exploitation of students in any of the college centers. Many forms of mutual help between departments of the college have resulted in carefully planned and useful educational experiences. Budgets were available for paid student service and other help where situations required such.

11) Student fees are charged to help cover teaching supplies in a number of industrial arts programs. Students pay laboratory fees in some colleges and are also required to purchase some supplies, and items of equipment, such as tool parts for small hand tools.

12) A practice encouraged in two state university programs allows undergraduate credit for approved summer work experience in industry.

13) Noteworthy developments in teaching shop classes in a number of places include Unit Project Work, Production Method Classes, and Industrial Arts Shop Experiments planned for junior and senior high school teaching programs.
The Industrial Education Department of the University of Maryland has made significant developments for a number of years in organizing materials and work in Industrial Arts Experiments.

14) Industrial arts teachers are placing greater emphasis upon preparation of students in fields of Electronics, Power Mechanics, Transportation Activities, and Fundamentals of Textiles. Colleges report they are unable to fill many requests for teachers in these fields.

15) School officials in a section of Western Pennsylvania reported 30 new industrial arts shops in secondary schools opened this year. The same trend was mentioned in one section of New York state.

16) In the opinion of this observer, there was evidence in every college visited of an outstanding effort on the part of industrial arts teachers to organize and arrange classrooms, tools and equipment according to principles of efficiency and good housekeeping. Shop organization and management was stressed in the teaching programs.

17) Great emphasis is being placed on quality of work in all phases of industrial arts teacher preparation. Numerous teachers said they are stressing as much as possible, design, craftsmanship, and professional skills. Students are being told to expect more critical evaluation of all their work. Although more employment in industrial arts teaching is expected, the competition for positions will be much greater in the years ahead.

18) Most industrial arts students who were contacted individually on this survey seemed to possess a comprehensive understanding and conceptualization about the work they are doing.

19) Some of the industrial arts coursework offered for graduate credit features "high level" shop and laboratory testing and experimentation with industrial materials and processes, and special problems in research.

20) In several places the writer raised the direct question to Industrial Arts Directors, namely, how do you secure good teachers and manage to keep them? The general reply was that they try to provide necessary teaching facilities and work conditions, and to offer attractive salaries; in some places, special consideration for meritorious service is given.

21) There is a definite organizational trend in a number of states in joining the separate work of teachers colleges with larger educational programs of state colleges and universities. A number of advantages pointed out as a result of this trend include, improved quantity and quality of students, teachers, and educational facilities, and in some cases, professional leadership. However, a few educators mentioned the possible disadvantage in the danger of less emphasis on the importance of teacher preparation in some subject fields.

Student Teaching Practices

Student teaching experience is considered a privilege for which industrial arts students must qualify. Requirements to enter this important phase of the program include satisfactory level of achievement in specified coursework, demonstrated skills in language and speech, interest in becoming a teacher, and final approval of an application for student teaching. A college placement officer or director of student teaching activities is responsible for coordinating and administering the program in most of the institutions. Major responsibility of directing and supervising the student teaching is usually given to one industrial arts staff member. This individual may be given some assistance in certain stages of the work by one or two other teachers in the department.

The writer was limited in time and opportunity to observe details involved in this part of the work; however, a few conferences were arranged with officials in the placement centers and with industrial arts student teaching supervisors at a time when student assignments were being made to public school teaching centers. A few visits were

made to observe students teaching in the public schools. General practices directly related to student teaching work are listed below.

1) An approach to student teaching is made through the processing of a detailed written application.

2) Attractive, well prepared and useful student teaching bulletins and guides have been developed, or are in the process of revision in most of the institutions visited.

3) Each college seems to maintain a continuous and effective working relationship with the public school teaching centers.

4) There appears to be a tendency to favor experienced and qualified graduates of the particular college in selecting cooperative teachers.

5) Work planned and carried out in Principles and Practices of Teaching, Special Methods courses, and Curriculum Study, is closely related to the student teaching program.

6) In a number of colleges, "tuition free" course privilege is granted to cooperating teachers. This work is taken as a phase of in-service education.

7) Budget provisions at some colleges enable the institution to pay cooperating teachers a fee in recognition of their services to student teachers. One teachers college reported a business arrangement with 33 centers where cooperating teachers are paid in the present semester.

8) There is a wide variety of practices in the particular time when student teaching occurs, and the length of time spent in a scheduled student teaching session.

9) Student teaching periods of 6, 8, and 10 weeks were reported most frequently. However, in some of the teachers colleges, the time given to this experience was 16 and 18 weeks, or a full semester.

10) Some institutions have two or three periods of student teaching for each industrial arts major. Where more than one period is required, the first experience may come as early as the beginning of the junior year, or 6th semester. In a number of programs that require two periods of student teaching, the first session is usually scheduled in the 7th semester of the college program.

11) The prospective industrial arts teacher is expected to spend a full-time teaching period in a public school, although many individual programs consist of a part-time, or half-day student teaching schedule, and a half-day schedule of college course work.

12) Industrial arts students usually return to the college campus following the final phase of student teaching for participation in regular college classwork and completion of requirements for graduation. It was explained in several colleges that some of this work includes a course in general shop activities.

13) The general pattern of student teaching experience falls under the stages of observation and partial participation, assistance to the critic or cooperative teacher, and full participation and full responsibility of a class group for a period of teaching.

14) Industrial arts student teachers often gain teaching experience in fields of Science, Mathematics, Social Studies, Music, Health and Physical Education.

15) A few teacher education centers reported that prospective student teachers may choose their centers and cooperative teachers, with approval of the supervisor and industrial arts department.

16) Public school principals frequently call for industrial arts students to serve as substitute teachers in a wide range of subjects.

Buildings, Equipment, and Facilities

Industrial arts teacher education programs are conducted in building structures of varied design and capacity as found in the institutions selected for this study. As would be expected, different arrangements exist in terms of location, size, and shape of industrial arts classrooms, shops and laboratories. Teaching programs in shopwork are carried on in a number of colleges in small rooms, never designed or planned as laboratory space. Basement rooms and hallways are being used for industrial arts classwork in a few places. At several colleges industrial arts classes in shopwork are held in two or more of the general college buildings. Industrial arts teachers in many places have enlarged and improved their departments by constructing, arranging,

and remodeling rooms, and by building certain essential equipment (work benches and cabinets).

Industrial arts teachers and administrators were outspoken in their description of needs for additional space, and the means for purchasing tools and equipment to enable them to keep pace with some of the changing standards found in modern industry.

Only about 8 of the institutions visited had building structures that had been designed and completed with features for industrial arts teacher education within recent years. A few of these institutions had plans under way for additional facilities.

The Director of Industrial Arts and his Staff at one teachers college, with 150 industrial arts majors, reported that no special space had been made available for industrial arts work since 1912. They were using whatever space was available in four different buildings on the campus. However, plans for a new industrial arts building are well under way, and construction is expected to begin soon. Another teachers college with about the same limited facilities explained that complete plans for a 2½ million dollar structure for practical arts and fine arts departments were now ready. Approximately one-half of the teacher education centers had developed preliminary drawings, and in some cases construction specifications for new industrial arts buildings.

In the opinion of the writer, there was not necessarily a positive correlation between quality of facilities and quality of service rendered. Colleges with adequate buildings and equipment seemed to be doing a good job. Similarly, colleges with limited facilities were developing commendable teacher education programs through a combination of interest, industry, and ingenuity.

A FINAL WORD

This observation tour suggests to the writer both the importance of and need for more extended and more frequent experiences of this kind. The experiences described in the foregoing summary were highly rewarding and stimulating. Certainly, a better understanding of the professional service of other industrial arts educators has been realized through this means of personal contact. In addition, the observation visits provided a privileged opportunity to raise questions and to exchange viewpoints on vital problems of mutual concern. This observation and interchange of ideas focussed attention upon an analysis of current emphases and problems and to a definition of future trends in industrial arts teacher education.

Rufus C. Johnson, Jr.
Professor of Industrial Arts
State Teachers College
Cheyney, Pennsylvania

Letter Requesting Approval To Visit Selected
Industrial Arts Teacher Education Institutions

Cheyney, Pennsylvania

Director of Industrial Arts

Dear Sir:

As a part of my program for sabbatical leave in the first semester I am visiting a number of industrial arts teacher education centers. I am writing to request approval to make a personal visit to your industrial arts department on _____.

I trust I may have a favorable reply at your early convenience.

Sincerely yours,

Rufus C. Johnson, Jr., Professor
of Industrial Arts

Typical Comments in some of the Letters from Industrial Arts Leaders Approving Visits

"It was certainly a pleasure to get your letter and to learn that you plan to visit us."

"It will be our pleasure to share with you our full facilities in the Industrial Arts Division..... Our staff will make themselves available for the best use of your time here."

"If you arrive at 8:00 you will get the day at its start and be able to sit in on one of my classes. This might be a little early, but come when you can."

"Your sabbatical leave program is of interest to me. If there is a written report prepared on your observations of the teacher education centers you visit I would like to have a copy. More men in our profession should be provided the opportunity to undertake such a venture...."

"I have taken the liberty of sharing your letter with my colleagues in the Industrial Arts Department. I can assure you that we are happy to have you plan a visit with us...."

"I hope you will be able to spend a good part of the day with us so that you can meet with our men and exchange views...."

"I have talked with Mr. _____ who said he will be happy to take you along to visit some of our student teaching centers if you have time enough to do so."

"Yes we would be delighted to have you whenever you can come...."